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## A LIST OF MANITOBA MOTHS.—PART II.

BY A. W. HANHAM, WINNIPEG, MAN.

This list was commenced on page 291 of Vol. XXIX. of this magazine. Since then another season has come and gone, and Mr. Heath, of Cartwright, has kindly submitted all his moths to me for names. Some good collecting has also been done by Mr. Marmont, at Rounthwaite. The result is, as will be seen by a perusal of the sub-joined list, a very respectable addition to the Sphingidæ and Bombycidæ of this Province.

Collections made by Mr. Criddle, at Douglas, and Mr. Hutchinson, at Kinosota, have not been seen yet ; they no doubt will yield some new or rare species, especially as both localities should be good ones. At Douglas there is a very large spruce and tamarac swamp, and Kinosota is close to Lake Manitoba, and has besides extensive forest lands in the district.

For collecting at light, the past season (1898) does not compare with the previous one. There were fewer good evenings, and never were insects (mosquitoes excepted) in the same abundance. An early beginning was made, however (April 14th), and in May, especially, a number of fine species showed themselves. The Cartwright records are Mr. E. F. Heath's captures, and the Rounthwaite ones Mr. L. E. Marmont's. Cartwright is in southern Manitoba, close to the border, and Rounthwaite lies about fifteen miles south-west of Brandon, almost at the foot of the Brandon Hills. Both appear to be "A.1" localities for the lepidopterist.

It is owing to the continued kindness and assistance of Dr. H. G. Dyar that I am able to make this list complete up to date. All my new insects, as well as those from Rounthwaite and Cartwright, have been referred to him.

*Hemaris rubens*, *Hy. Edw.*—Plentiful around "thorn" bloom in open woods on May 24th, and easily netted ; a few *H. ruficaudis*, *Kirby*, were out with them, but they were very wild and every one was missed. Also from Rounthwaite and Brandon.

*Lepisesia flavofasciata*, *Barnst.*—One at Rounthwaite in May. The moth was not sent away, but Dr. Dyar kindly sent a description, by which it was identified.

*Ampelophaga chœrilus*, *Cram.*—Cartwright.

*Triptogon modesta*, var. *occidentalis*, *Hy. Edw.*—Cartwright, Douglas, and Rounthwaite.

*Smerinthus cerisyi*, *Kirby.*—At light, May 17th, 20th, and 23rd (four specimens altogether). Also from Cartwright and Rounthwaite. *Geminatus* was common on above dates, and came to light again on July 13th and 22nd, when, however, it was not accompanied by *cerisyi*.

(*Paonias myops*, *S. & A.*—My record of this species for Manitoba was confirmed on June 15th, when a beauty came to light and was captured. No others showed up.)

*Bembecia marginata*, *Harr.*—Cartwright.

*Sesia tipuliformis*, *Linn.*—July 31st, one at rest on a currant bush on the prairie.

*Thyris maculata*, *Harr.*—June 19th, two at rest on yellow flowers on the prairie.

*Nola fuscula*, *Grt.*—July 12th, at light, rare. This species was also taken at light in 1897.

*Hypoprepia fucosa*, var. *plumbea*, *Hy. Edw.*—July 12th to 22nd, rare at light. Dr. Dyar informs me that *H. miniata*, *Kirby*, is a good species (not a var. of *fucosa*). I have not taken *miniata* in Winnipeg, but Mr. Heath tells me it has always been very plentiful with him at light. My record of this species from Brandon was correct.

*Lithosia bicolor*, *Grt.*—Aug. 8th, one at light. Also from Cartwright.

*Crocota laeta*, *Bdv.*—July 12th, a pair at light.

*Arctia Williamsii*, *Dodge.*—From Cartwright and Rounthwaite. According to Dr. Dyar, a good thing, and quite unexpected from Manitoba.

*Phragmatobia rubricosa*, *Harr.*—From Cartwright.

*Leucarctia acraea*, *Dru.*—From Cartwright and Rounthwaite.

*Euchætes oregonensis*, *Stretch.*—Single examples at light on June 17th and 23rd. Also from Cartwright.

*Halisidota tessellata*, *S. & A.*—July 28th, one at light.

*Ichthyura strigosa*, *Grt.*—Two at light about the middle of July; also from Rounthwaite. This species may have been more abundant than the record shows, as it was confused with *vau*, which was very common at light.

*Gluphisia severa*, *Hy. Edw.*—April 25th, one at Rounthwaite. This moth was named by Dr. Dyar from a description which I sent to him.

*Notodonta stragula*, *Grt.*—May 25th and June 17th, single examples at light.

*Notodonta simplaria*, *Graef.*—June 17th and July 13th, single examples at light.

*Lophodonta georgica*, *H.-S.*—A beauty at light on June 19th.

*Nerice bidentata*, *Walk.*—May 24th and 25th and July 13th, at light.

*Schizura leptinoides*, *Grt.*—From Cartwright.

*Coelodasys apicalis*, *G. & R.*—From Cartwright (unique).

*Cerura multiscrypta*, *Riley.*—From Cartwright (unique).

*Cerura aquilonaris*, *Lint.*—May 17th and 20th, at light.

*Prionia bilineata*, *Pack.*—From Cartwright.

*Hemileuca maia*, *Dru. (?)*—A species of *Hemileuca* occurs in Manitoba, but which one has not yet been determined with certainty. On September 6th, 1897, Mr. Boger noticed a number of large moths on the wing in the daytime in the vicinity of the Douglas swamp. Among a lot of paintings of lepidoptera, done by Mr. Criddle, of Douglas, I noticed a *Hemileuca* which seemed pretty close to *Californica*, and from the same paintings Mr. Boger was able to place his day-fliers. Early in July, 1898, Dr. Fletcher found larvæ of a *Hemileuca* feeding on aspen at Bird's Hill, near Winnipeg; these have since produced *H. maia*, var. *lucina*, *H. Edw.*

*Clisiocampa disstria*, var. *thoracicoideis*, *N. & D.*—This form occurred here in July with *disstria*. Both were rare.

*Cossus centerensis*, *Lint.*—June 12th, one at light, also seen from Cartwright. My capture was in beautiful condition. I found it resting on the window-sill close to my lamp, and it showed no desire to move even when bottled.

*Cossus populi*, *Walk. (?)*—Dr. Dyar in naming this did so with a query. From Cartwright.

*Prionoxystus robiniae*, *Pack.*—From Cartwright. Mr. Heath says he got several of these moths from some oak logs used in the construction of his house.

*Hepialus mustelinus*, *Pack.*—July 18th and 21st. Both specimens taken were fresh. The first was discovered at rest on the wall of my house towards dark, the other was sitting inside one of my open cellar windows. None came to light.

## NOTES FOR 1898.

*Deilephila gallii* was common both at bloom and at light; *lineata* did not show up at all.

*Sphinx albescens* appears to have been plentiful at Rounthwaite, and a pair of *luscitiosa* were captured there.

*Ceratomia undulosa* seemed to be not uncommon in Elm Park, at rest on trees, and *Cressonia juglandis* came frequently to light.

*Argyrophyes cilicoides* turned up again about the same date, and several were taken.

*Platarctia hyperborea* has been taken at Cartwright and Douglas.

*Arctia virgo* and *Saundersii* were both equally common again at light, and I took several *virguncula* in the same way.

*Halisidota maculata* came to light several times, and some more were secured from pupæ found under boards in Elm Park.

*Tortricidia testacea* was one of the most abundant species coming to light, and came in from June 18th to July 13th.

The *Ichthyuras* appeared at light as early as May 13th, and they are apparently double-brooded here. The May lot of *albosigma* were much lighter coloured and handsomer than those taken in July, and among the latter not a single pale one was seen either season.

*Schizura ipomeæ* was not common as in 1897, and not a single *cinereofrons* was taken.

Both *Dryopteris rosea* and *irrorata* were more plentiful than the previous season, and were out for several weeks.

This year I took *Anisota virginensis* at light, and *Clisiocampa fragilis* was quite common.

*Phyllodesma americana* came to light on May 17th and 20th, and was not seen later.

(TO BE CONTINUED.)

## ACKNOWLEDGMENT.

I desire on behalf of the Entomological Society of Ontario to acknowledge the receipt of some very fine Manitoba Noctuids, from Mr. L. E. Marmont, of Rounthwaite, Man., which are new to the Society's collection. Some of them have only recently received their names, and many of them are particularly attractive species; as *Oncocnemis atrifasciata*, Morr., for instance, which makes this generous donation of Western material a useful and much needed addition to the Society's collection, and therefore more than usually valuable and acceptable. The gratitude of the Society to the considerate donor is specially due.

J. ALSTON MOFFAT, Curator, London, Ont.

## NOTES ON ARKANSAS TRUXALINÆ.

BY JEROME MCNEILL, FAYETTEVILLE, ARK.

This subfamily is rather poorly represented in Arkansas, only eight of the thirty-one genera recognized by me as occurring in North America having been found within its borders, and only one genus, *Orphula*, is represented by more than a single species.

*Mermiria rostrata*, McNeill.—Has not been found in the State, but its occurrence at Mackay, I. T., makes it altogether probable that it belongs to our fauna.

*Truxalis brevicornis*, Linn.—Occurs in the central part of the State, but has not yet been found in the mountainous Northwest.

*Erritettix virgatus*, Scudd.—This species must be said to be rare. I have found it nowhere in the State except in a few localities about Fayetteville. It is probably the first Orthopteron which reaches maturity in the spring. As early as April fourth there were no pupæ to be found.

*Syrbula admirabilis*, Uhler.—This is a southern form, and by far the most common of the Truxalinæ. It is abundant in old pastures. It reaches maturity about the first of July. Brown females are much less common than brown males, but they are not rare.

*Chloealtis conspersa*, Harr.—An uncommon species, so far as my observation goes. It is represented in my collections from Arkansas by a single pair (male and female) of adult specimens and by three pupæ. These specimens were all taken early in July, and they were always found about the head of wooded ravines in north-west Arkansas. When compared with Illinois specimens these are seen to be larger, the male measuring 25 mm. The female is noticeably different from northern specimens in having the tegmina subacute and the sides of the head, pronotum and abdomen black or very dark fuscous. In the young the antennæ are more distinctly flattened basally than in the adult.

*Dichromorpha viridis*, Scudd.—This species is widespread, though nowhere abundant, and scarcely common. The brown is about as common as the green variety amongst the females.

*Orphula pelidnus*, Burm.—This species is the commonest *Orphula* in the State, though it is not abundant or scarcely common in the north-west. In the central and southern parts of the State it is abundant.

*Orphula speciosa*, Scudd.—This species is much more uncommon than I had formerly supposed. I have found it in a few widely scattered localities only.

*Orphula decorata*, McNeill.—No other specimens have been found since the single one, on which the species is based.

*Boopedon auriventris*, n. sp.

Vertex prominent, declivent, convex, not separated from the front by distinct carinæ, not forming an angle with the front, but united with it in a curve, as wide between the eyes as the long (female) or short (male) axis of the eye; foveolæ of the vertex entirely wanting (female) or barely discernible (male); foveolæ of the tempora obsolete or represented by punctate areas, plainly visible from above; front moderately inclined, the costa broad, with the sides generally parallel, half as wide as the space between the eyes, convex, suddenly constricted just above the antennæ, vanishing much before the clypeus; antennæ filiform, yellowish at the base, beyond usually much infuscated, longer (female) or much longer (male) than the head and pronotum. Disk of the pronotum subtectiform; posterior margin straight, sides constricted, especially at the first sulcus; median carina strong, percurrent, cut much behind the middle by the principal sulcus; lateral carinæ obsolescent, more distinct in the male, especially on the anterior part of the progone; lateral lobes arcuate dorsoventrally narrow, a little wider (deeper) than long, with the posterior margin perceptibly more oblique than the anterior, the lower margin very obtusely angulate. Space between the mesosternal lobes strongly transverse, that between the metasternal lobes linear, with a deep sulcus on either side (male) or slightly transverse (female), with equally deep sulci. Tegmina not exceeding half the length of the abdomen, ovate, rounded at the tip (male) or subacuminate (female). Posterior femora long, moderately slender, banded above and on both outer and inner surfaces (male) or bands more or less completely obsolete (female). Posterior tibiæ red at least on the distal half, basally frequently lighter, with more or less distinct infuscations near the middle and at the extreme base; apical spines on the inner side very unequal, the longer about equalling in length the terminal joint of the tarsus with its claws. Ovipositor nearly included. Colour very variable, either nearly uniform fuscous-brown or testaceous, with a more or less distinct olive tinge, enlivened with variable fuscous markings; in the lighter specimens there is a fuscous stripe just below and parallel to the tempora, preceded by a light yellow stripe; the sides of the head have a broad fuscous stripe reaching from the upper posterior margin of the eye to the pronotum, broadening rapidly; the lateral lobes of the pronotum are typically infuscated except

for a narrow anterior and a broad posterior band; the abdomen has a series of large quadrate fuscous spots along the sides (female) more or less replaced by bright red (male); the dorsal surface of the abdomen and less frequently the disk of the pronotum and the top of the head are bright yellow or brownish-testaceous; ventral surface of the abdomen more or less distinctly yellow, with the last two segments in the male red. Length: male, 22 mm; female, 38 mm.; tegmina: male, 7 mm; female, 9½ mm.; hind femora: male, 15½ mm.; female, 23½ mm. Fourteen adult males, twenty adult females, seven pupæ, from the summit of Sulphur Springs Mountain, on the line between Boone and Newton counties.

This species is so different in the position of the principal sulcus of the pronotum and in the character of its posterior margins from the other species of *Boopedon* as to perhaps deserve to constitute a genus by itself. Its occurrence is quite remarkable. Sulphur Springs Mountain stands probably as much as a thousand feet above the valley, and with the exception of two or three neighbouring mountains, it decidedly overtops all the surrounding country. This mountain is a high ridge, probably one and a half miles long at the summit. At either end there are considerable prominences, composed of massive millstone grit. One of these is surrounded by cliffs on all sides, so that the top can be reached with some difficulty; the other has the cliffs broken down in places, so that its summit is much more readily accessible. On both of these a tall coarse grass grows luxuriantly, and among this grass this species was found in abundance over the few square yards of the least accessible peaks. A single male was found on the other peak. As several days were spent in collecting in this vicinity, and as particular pains were taken to secure all the specimens possible, and since no other specimens have been found elsewhere, though seven weeks were spent in the summer of 1897 by the writer and a party of three others in collecting in North-western Arkansas, it is reasonable to conclude that this species is an old resident which has inhabited the country since the times when the Ozark plateau was a level plain. As erosion carved out the valleys, the level surface was more and more restricted in areas until at the present time it is represented by the summits of the highest mountains. In this way *auriventris*, which is a grass-loving prairie species, has been hemmed in by the encroaching forests until it now maintains a precarious foothold on a few isolated mountain summits. Under such circumstances wings would be a disadvantage, so they have been shortened by natural selection.



## NOTES ON THE AMERICAN FORMS OF EUCHLOE, HUBNER.

BY WILLIAM BEUTENMULLER, CURATOR, DEPARTMENT ENTOMOLOGY,  
AM. MUS. NAT. HIST., NEW YORK.

In answer to Dr. Butler's comments (CAN. ENT., XXXI., p. 19) upon my revision of the species of *Euchloë* (Bull. Am. Mus. Nat. Hist., X., pp. 235-248), I could state that Dr. Butler may possibly be right in considering *creusa* (var. *elsa*), *hyantis* and *lotta* seasonal forms of *ausonides*, but with the present knowledge it is not possible to place them so, and for this reason I concluded it would be best to allow the species to remain distinct until more light could be obtained on the subject. At any rate, I was certain that what we had labeled in our collections as *creusa* was not Doubleday and Hewitson's species, which Dr. Butler definitely asserts is my var. *elsa*. What seems to me strange is, how was it that Edwards did not recognize the figure of *creusa*, sent to him by Dr. Butler. *Creusa* (var. *elsa*) cannot be mistaken for either *hyantis* or *lotta* (so-called *creusa*). Doubleday and Hewitson did not give a description of *creusa*, and their figure of the species is unrecognizable, consequently has no scientific value. *E. olympia*, I can assure Dr. Butler, is not a *Zegris*, but belongs with *ausonides*. In the genus *Zegris* the head is very thickly scaled and the palpi are very short, while in *E. olympia* the palpi are long, and in all other respects it agrees with *ausonides* generically. *Cethura* and *pima* do not strictly belong to *Midea* as placed by me. Mr. Grote erected the generic name *Tetracharis* for *cethura* (Proc. Am. Phil. Soc., XXXVII, Jan., 1898, p. 37). In this paper, of which I had no knowledge when writing my own, Mr. Grote referred the American species, with orange blotch in the male, to *Euchloe*, with *cardamines* of Europe as the type, as proposed by Kirby, Scudder, myself and others. He further states that the white species of both continents are slightly more specialized and might be kept under the title of *Anthocharis*, consequently my conclusions, which were worked out independently, are the same as those of my friend Grote. Dr. Butler's remarks about the venation are practically the same as mine, only that he counts the veins differently. Mr. Grote has given excellent figures of the venation of *ausonides*, *cardamines* and *cethura*, to which the reader is referred. Dr. Skinner, in his recent catalogue of North American Rhopalocera, 1898, places *thoosa* as a synonym of *Reakirtii*. I can definitely assert that it is the female of *julia*. He also places *stella* as a synonym of *Reakirtii*, but it is the yellow variety of the latter.



## THE COLEOPTERA OF CANADA.

BY H. F. WICKHAM, IOWA CITY, IOWA.

## XXXI. THE PYTHIDÆ OF ONTARIO AND QUEBEC.

While the Canadian species of this family are not numerous, they are of considerable interest, and, because of the scattered nature of the literature, often quite difficult to identify. The present paper, while containing little that is new, will serve to bring together in concise form the information necessary to enable the beginner to examine his material intelligently.

In the Leconte and Horn "Classification," the following characters are used as defining the family: "Mouth-parts normal, palpi flexible, front and middle tarsi with five, posterior with four joints. Anterior coxal cavities open behind, head not strongly constricted at base, middle coxæ not very prominent. Thorax not margined and without discal basal impressions, antennæ not received in grooves." In appearance, the members differ considerably among themselves, some (for example *Pytho*) being very much flattened, while others (*Lecontia*, *Boros*, *Priognathus*) are much more convex and of elongate form, recalling that of some Trogositidæ. Two genera, *Rhinosimus* and *Salpingus*, contain small species which are sufficiently like some flattened Rhynchitidæ (e. g., *Eugnamptus*) to have led to their being placed in that family by early describers. The table will serve to distinguish them generically:

- A. Large or moderate sized. Head not produced into a beak, mandibles visible beyond the labrum.
    - b. Third joint of antennæ not longer than the fourth.
      - Head behind the eyes gradually slightly narrower. *Lecontia*.
      - Head behind the eyes with a distinct though not strong constriction or neck. . . . . *Boros*.
    - bb. Third joint of antennæ distinctly longer than the fourth.
      - Body very much flattened, depressed, elytra distinctly striate. . . . . *Pytho*.
      - Body subcylindrical, elytra punctured, with only faint indication of striate arrangement. . . . . *Priognathus*.
  - AA. Small. Head produced into a beak, mandibles exposed beyond labrum.
    - Beak broad and short. . . . . *Salpingus*.
    - Beak prolonged. . . . . *Rhinosimus*.
- The name *Crymodes* has been altered to *Lecontia* in the above

scheme to harmonize with the usage of the latest supplement of the Check-list.

LECONTIA, Champ.

*L. discicollis*, Lec. (fig. 17), is blackish-piceous; head coarsely closely punctured, usually with a few irregular smooth spaces on the vertical and occipital regions, sides behind the eyes nearly straight, slightly convergent posteriorly. Antennae short, not reaching middle of thorax, last three joints broader. Prothorax transverse, about one and a half times as broad as long in the best developed specimens, wider than the head, sides nearly or quite straight and parallel from near apex to behind the middle, thence rapidly narrowing to base; surface coarsely, closely but unevenly punctured with irregular smooth spaces on median area and a large ill-defined central discal impression, on each side of which is a rather less evident one. Elytra conjointly a little more than twice as long as their width at base, sides nearly parallel to near the tip. Surface rather shining, densely punctured, with several very slightly elevated costae. Legs short, concolorous with the body. Length of my specimens varies from 10 to 20 mm. = .40-.80 inch. The small individuals resemble the next species very closely in general outline and appearance, but may be readily separated by the shape of the head behind the eyes. The larger individuals have the above-mentioned specific characters much better developed than have the smaller ones. Beaten from pine trees or found under bark.



FIG. 17.

BOROS, Hbst.

*B. unicolor*, Say, resembles *L. discicollis* in general form and colour, but is usually much smaller and more shining. The head is much narrower than the prothorax, distinctly constricted behind the eyes. Antennae short, not reaching back to middle of prothorax, last three joints broader, proportionately more so than in the preceding species. Prothorax, by measurement, just perceptibly broader than long, densely, coarsely and rather regularly punctured; sides regularly rounded, no discal impressions. Elytra elongate, more than two and a half times as long as the breadth at base, sides nearly parallel to near the tip, only slightly broader behind the middle, surface more finely punctured than the thorax, punctuation close, without serial arrangement. Evidences of costae are very faint. Length, 11-12 mm. = .44-.48 inch. Found under bark.

PYTHO, Latr.

The species of this genus are commonly found under pine bark or

in lumber piles about sawmills. They recall, in appearance, the Carabidæ, without very closely resembling any of that family with which I am acquainted, though suggesting *Cymindis* or *Helluomorpha*. The table following is that of Dr. Horn. I have used the name *americanus*, though in the Henshaw Supplement it is changed to *planus*, Oliv., while Dr. John Hamilton, in Trans. Am. Ento. Soc., XXI, p. 401, replaces it by *depressus*, Linn. Rather than get our students tangled up with so much shifting, I have adhered to Kirby's designation, *americanus*, by which it has hitherto gone, and which will enable it to be readily placed when the synonymy is finally set at rest.

- A. Base of thorax constricted, forming a collar. Median line of prothorax broad and deep. Brownish, with paler elytra, no metallic lustre. .65 in. .... *strictus*, Lec.
- AA. Base of thorax not constricted, sides arcuate from front to hind angles. Median line fine.
- b. Colour, when mature, black, shining. Legs black or brown. No metallic lustre.
- Prosternum in front and gula not punctate. .44-.46 in. .... *niger*, Kirby.
- bb. Colour piceous or castaneous, varying occasionally to rufous, with violet or bluish surface lustre. Legs, antennæ and under side reddish-yellow. Prosternum more or less punctured, gula transversely wrinkled. .45-.60 in. (fig. 18)..... *americanus*, Kirby.

PRIOGNATHUS, Lec.

While agreeing with *Pytho* in having the third antennal joint much longer than the fourth, *P. monilicornis*, Rand., is in form much more like *Leontia*, but is more convex. A specimen in my collection answers to the following description: Piceous, shining, head narrower than the prothorax, distinctly punctured, the punctures larger and better separated on the median area. Between the antennæ is a deep transverse impression. Eyes small, rounded, prominent, sides of head behind them slightly and regularly convergent. Antennal club gradually formed. Prothorax widest about the middle, broader than the head, sides rounded, strongly and regularly sinuate near the base; punctuation rather coarse, the punctures well separated, not crowded, disk with a large, vague impression



FIG. 18.

on each side near the middle. Elytra elongate, sides subparallel to near the tip, at base broader than the greatest thoracic width, surface coarsely, closely punctured without definite serial arrangement, costæ fine, indefinite, outer elytral margin reflexed, slightly explanate. Legs short, abdomen rather finely and very clearly punctured. Length, .34 in. Found under logs in coniferous forests.

SALPINGUS, Gyll.

*S. virescens*, Lec., resembles somewhat in form an extremely small *Pytho*. It is greenish-black, shining, head with distinct punctures, rather sparsely placed, eyes prominent, antennæ reddish, the last three joints (which form the club) piceous. Prothorax a little broader than the head, widest about one-fourth from apex, thence arcuately narrowing anteriorly, posteriorly somewhat obliquely narrowed to near the hind angles, which are rectangular and distinct. Surface shining, punctures of moderate size but sparsely placed, an illy-defined impression on each side at the broadest part. Elytra at base broader than their junction with the thorax, widening behind the middle, striate, the striæ fine and shallow, with rows of distinct, closely-placed punctures at bottom, interspaces flat. Humeri prominent. Under surface and legs blackish. Length, .10 inch.

RHINOSIMUS, Latr.

The original description of our Canadian species of this genus was drawn up by Mr. Randall, who described *viridianeus* as a species of *Rhynchites*. It does bear some slight resemblance in form to certain flattened Rhynchitidæ, for example the genus *Eugnamptus*, but the correspondence is by no means close. I have none at hand for description, so append Dr. Leconte's diagnosis of *R. nitens*, which is now considered identical with *R. viridianeus*, Rand. Elongate, blackish-green, highly polished, head and rostrum strongly punctured. Beak flat, twice as long as wide, narrowed at middle, wider at tip. Tip and mouth testaceous. Thorax scarcely broader than long, narrowed behind, sides rounded anteriorly, disk coarsely punctured, quadrifoveolate. Elytra about twice as wide as the prothorax, seriatly punctured, alternate interspaces sparsely uniseriately punctate; near the base is a deep arcuate transverse impression. Beneath piceous or piceo-testaceous. Head with large punctures beneath. Length, .15 inch.

I have purposely made the descriptions of the species of this family more detailed than most of those treated in foregoing papers, because

of the less-known character of the insects themselves. No complete monograph of the American species has appeared, but some genera have received treatment as cited below :

1868. Geo. H. Horn. New species of Coleoptera from the Pacific District of the U. S. Trans. Am. Ent. Soc., II., p. 136 (Table of *Cononotus*).  
1879. J. L. Leconte. New Coleoptera. North Am. Ento., Vol. I, p. 4 (Table of *Rhinosimus*).  
1888. Geo. H. Horn. Miscellaneous Coleopterous Studies. Trans. Am. Ent. Soc., XV., p. 45 (Table of *Pytho*).

ON THE LARVÆ OF NORTH AMERICAN NOLIDÆ, WITH  
DESCRIPTIONS OF NEW SPECIES.

BY HARRISON G. DYAR, WASHINGTON, D. C.

Genus ROESELIA, Hübner.

*R. triquetrana*, Fitch.

The larva lives on witch hazel. See Psyche, VI., 110 (*trinotata*).

*R. minna*, Butler.

The larva is unknown.

*R. sorghiella*, Riley.

The larva lives in a web on sorghum. See Psyche VI., 110. It is pale yellowish, a red-brown band along warts i + ii, a paler waved band below wart iii and another just above wart vi; hair short, pale, a few long ones. Feet of joint 7 wanting.

*R. melanopa*, Zeller.

The larva is unknown.

*R. pustulata*, Walker.

The larva is unknown.

*R. cilicoides*, Grote.

The larva is unknown.

Genus NOLA, Leach.

*N. phylla*, Dyar.

Stage III.—Similar to the next; body all pale yellowish, a tiny dot on joint 7; head .4 mm. Previous stages not observed.

Stage IV.—Head pale testaceous, width .8 mm. Body flattened, warts large, in three rows, the fourth concealed, abdominal feet on joints 8 to 10 and 13. Pale greenish, shaded with white and brown, a dorsal brown patch on joint 7; subdorsal region irregularly streaked with brown. Hair short and bristly on the upper two warts, very long from

the lower wart, which is lappet shaped. Hair pale, the warts pale brownish; a faint dark dorsal line.

Stage V.—Head brownish testaceous, width 1.2 mm. Body as before, but browner, the mark on joint 7 smaller; a fainter one on joint 11, double. Third wart produced, its hair long and abundant, warts above with the short hair black tipped. Body pale yellowish, a geminate dorsal band of the ground colour, sides below this all faintly brown mottled except at the extremities; warts whitish with a brown ring at the base.

Stage VI.—Head whitish, mottled with brown on the lobes, jaws black; width 1.8 mm. Dorsum broadly pale cream colour, a dark brown subdorsal band, the pair joined by a transverse band on joints 7 and 11, mottled; subventer pale. Wart iii papillose. Body flattened, squarish. Hair pale, the short ones from the upper two warts brownish, those from the third wart very long.

Cocoon triangular, of little pieces of bark, as usual in the genus.

Food plants oaks of various species. The larvæ rest on the backs of the leaves. Rather common at Bellport, Long Island, N. Y.

*N. fuscula*, Grote.

The larva is unknown.

*N. minuscula*, Zeller.

The larva is unknown.

*N. ovilla*, Grote.

The larva lives on oak, hiding on the bark. See Psyche, VI., 110.

*N. clethræ*, n. sp.

Very close to *ovilla*, but a bluer gray, less ashen. The brown tufts do not rest on the costa, the lines are narrow and dotted, especially the t.-p.; ground colour uniform, bluish-ashen; thorax concolorous, collar posteriorly banded with brown; abdomen and hind wings paler, the latter with a faint discal dot and lighter towards the base, all as in *ovilla*, from which the only distinct difference is the general colour. Expanse 16.5 mm. One male, three females. Bellport, N. Y.

Types in the U. S. National Museum (Type No. 4112) and in the British Museum.

Egg.—Flattened especially in a large area above, outline circular but distinctly elongate in one diameter; sides 25-ribbed, a waved line on the surface of each rib, with fine parallel cross striæ, making elongate rectangular cells; the flattened vertex is finely reticulate. Dull, translucent, waxy white; size .4 and .5 mm., .3 mm. high. Laid on the backs of the older leaves close to a vein.

Stage I.—Small, rather thick and square, not lively, sitting on the back of the leaf near the edge, out straight. Head .2 mm., all translucent whitish, the food green. Hairs single, the primary ones only present; on the abdomen ii is large and black, alternating, leaning outward on joints 7, 9 and 11, the other hairs pale, iv very long, v shorter and pale. Hair i is shorter than ii, iv and v are approximate, iv scarcely higher than v. On the thorax ia is small, ib large and black; iia and iib close together, iia very small; v is long and vi very small. The hairs are fine, not glandular, slightly spinulose. The skin has fine spinules. No feet on joint 7.

Stage II.—Head .3 mm. wide. All white; body thick, the slender abdominal feet absent on joint 7. Warts in four rows as usual, i and v apparently coalesced completely with ii and iv; hairs short, bristly, brownish, not numerous; warts whitish.

Stage III.—Head .45 mm. As before, all rather opaque white, no marks. Warts small, the hairs bristly, a few long ones at the ends. Thick, flattened, the feet small.

Stage IV.—Head .8 mm. Still all translucent whitish, but the appearance is greenish-gray from the food in the alimentary canal. Warts large, round, iv + v the largest; spiracles brown. Hair pale, the short ones brown tipped, smooth, not spinulose. Dorsal vessel greenish. Length at the end of the stage 5 mm.

Stage V.—Head 1.3 mm. wide, retracted at the apex, white, the mouth brown, a dark gray patch at the apex of each lobe. Three upper rows of warts large, the lower small, the body short and thick. Ground colour translucent white, but shaded around the base of each wart and in irregular dorsal and lateral bands with dark gray; large warts of cervical shield brown behind. Hair short, bristly, with brown tubercles and tips, a few long pale hairs from the extremities and third wart. The body is mostly dark above the spiracles. Later there is a reddish-brown broken subventral shade which also tints the third wart. Marks all diffuse, the appearance gray-brown, lighter subventrally.

Cocoon as usual on a twig, triangular and made of bits of bark.

Food plant *Clethra alnifolia*. Larvæ found in all the swamp lands of Long Island that were searched, Brookhaven, Southhaven, Quogue, etc. The larvæ hide, but may be found on dark, damp mornings. Usually they remain white till the last stage, but a few assumed the brown shading in part in the penultimate stage, some even having brown warts at this time.



*N. involuta*, Dyar.

The larva lives on willow, hiding by day in curled leaves. See Psyche, VI., 248 (*†minuscula*), and Coquillett, Journ. N. Y. Ent. Soc., VI., 249 (*†minuscula*).

*N. exposita*, Dyar.

The larva lives on willow, feeding exposed. See Psyche, VI., 110 (*†hyemalis*).

*N. anfracta*, H. Edwards.

The larva is unknown.

## Genus MEGANOLA, Dyar.\*

*M. conspicua*, Dyar.

The larva is unknown.

*M. minor*, n. sp.

Closely resembling *Nola minuscula*, but larger and differing in generic characters. Gray, the male almost whitish, the female more ashen; a dark shade on basal fourth of costa; t.-a. line fine, dark, obscure, undulate and notched; two short lines on costa in median space, reaching subcostal vein only; a slight black streaking at veins 3 and 4 at base. T.-p. line distinct, slender, black, strongly arcuate outward beyond cell; s.-t. line obscure, pale, waved. Hind wings pale, smoky tinged outwardly. Expanse 21 to 25 mm. Three males, one female. Santa Rita Mts., Arizona (E. A. Schwarz). Types in U. S. National Museum (Type No. 4113), and in the British Museum.

The larva is unknown.

*M. dentata*, n. sp.

Similar to the preceding, though still smaller. Fore wing elongate, ashen; a slight dark shade on costa at base; t.-a. line narrow, dark, running outward to a sharp angle in the cell, where it touches a round dark spot in a dusky cloud that rests on the costa in the centre of the median space. T.-p. line strongly arcuate outward beyond the cell, finely dentate, the tips of the dentations forming points that are stronger than the otherwise faint line. Terminal space indefinitely clouded, the subterminal line hardly resolved. Hind wing pale, cinereous tinted. Expanse 19 mm.

One male, Chiricahua Mts., Arizona, July 4th. (H. G. Hubbard.) U. S. National Museum; type No. 4114.

The larva is unknown.

The larvæ of our Nolidæ are known in 40%. Of the Eastern species, 55% are known.

\*In my description (Journ. N. Y. Ent. Soc., VI., 43), I stated that vein 4 of hind wings was absent. It is really present, but so long stalked with 3 as to be almost on the margin of the wing, and I overlooked it. Male antennæ pectinate.

## NOTES ON SOME NEW MEXICO BUTTERFLIES.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

*Lemonias Duryi*, Edwards.—I have before me a ♀ taken by Mr. S. Macgregor in 1898 between Mesilla Park and the Organ Mts., N. M.; that is, in the exact type locality of the species, originally collected by Mr. Dury in 1881. The specimen expands an inch and a half, and is thus larger than Dury's, but is otherwise the same. I do not know why Dr. Holland states (Butterfly Book, p. 230) that the ♀ *L. Duryi* figured by him is the only one known; Dury took several, and Edwards described from both sexes.

*Anosia strigosa*, Bates.—A beautiful specimen of this insect was taken (1898) by Mr. S. Macgregor close to Little Mountain, Mesilla Valley, N. M.

*Heterochroa* (or *Adelpha*) *californica*, Butler.—This beautiful butterfly is common in the Organ Mts., N. M., a more eastern locality than any I find recorded for it.

*Satyrus Meadi*, Edw.—Fillmore Canon, Organ Mts., N. M., Aug. 29; collected by Prof. C. H. T. Townsend.

*Neonympha Henshawi*, Edw.—This is rather common at Dripping Spring, Organ Mts., N. M., 5600 ft., and I took it on Tuerto Mtn., near Santa Fé, Aug. 7, at 8875 ft. Thus it has a vertical range of at least 3275 ft.

*Melitæa chara*, Edw.—Common flying in a grassy spot near the western base of the Organ Mts., N. M., 1898. (Ckll. and S. Macgregor). This is an austral representative of the subalpine or subboreal *M. minuta*, the latter flying at much higher altitudes. *M. chara* has hitherto been reported only from Arizona.

*Chlorippe montis*, Edw.—Common on the western side of the Organ Mts., N. M., at about 5000 ft., in the neighbourhood of *Celtis* bushes. This is the Upper Sonoran representative of the Lower Sonoran *C. antonia*. The Organ Mt. examples are strongly fulvous above, not pale ashen-gray as Holland (Butterfly Book, p. 190) has it. Edwards (Papilio, Vol. III., p. 7) states that his types of *montis* were fulvous above. All that I have seen have the ocellus in the lower median interspace blind, while that in the upper has a white spot.

*Phyciodes nycteis*, Dbl. and Hew.—Taken by Prof. E. O. Wootton, on Ruidoso Creek, N. M.

*Eresia texana*, Edw.—Dripping Spring, Organ Mts., N. M., 5600 ft., April 20. (Ckll.)

*Catopsilia senna*, L.—Mesilla Valley, N. M. Mr. S. Macgregor took a ♀ var. *orbis*, Poey, near Little Mountain. The varieties named *orbis*, Poey; *pallida*, Ckll.; *hyperice*, Sepp., and *pomona*, Donov., appear to be practically identical.

*Euchloe Reakirti*, Edw.—I took a ♀ of this at Dripping Spring, Organ Mts., N. M., April 24. The lower wings are delicately suffused with lemon-yellow, showing some transition towards *stella*, but in all other respects the insect is true *Reakirti*. The insect has hitherto, I believe, only been found in California.

*Lycena acmon*, Dbl. and Hew.—This species has a vertical range of at least 6000 ft.! At Mesilla Park, N. M., I bred it from *Astragalus Wootoni*, Sheldon.

*Thanaos clitus*, Edw.—I saw, but failed to capture, an example of this beautiful species at the western base of the Organ Mts., N. M., at the end of August. My recollection of it accords exactly with the figure in Dr. Holland's "Butterfly Book."

The following 14 species were collected by Mr. W. J. Howard in Grant Co., N. M.:

*Satyrus alope*, race *nephele*, Kirby.—♀. Similar to fig. 4, Pl. XXVI., of Holland's "Butterfly Book," except that there are three of the minute ocelli on the under side of the secondaries. This really belongs to Edwards's race *olympus*, by its locality and comparatively pallid colour; but the ocelli on the primaries are much larger than in Edwards's fig. 6, Pl. III., of *Satyrus*.

*Melitea leanira*, race *fulvia*, Edw.—In the specimen before me, the secondaries beneath are yellowish-white with black markings, instead of "yellow-buff," but they may have faded. There is much resemblance to the Californian, *M. Wrightii*, as figured by Holland, but there is not the fulvous at the base of the primaries, and the secondaries beneath are not so heavily marked in our insect.

*Melitea thekla*, Edw.—One specimen. *Eu Vanessa antiopa*, L.; *Pyrameis cardui*, L.; *P. huntera*, Fab.; *Euptoieta claudia*, Cram.; *Synchlœ lacinia*, var. *crocale*, Edw.; *Anosia archippus*, Fab.; *Meganostoma casonia*, Stoll.; *Colias eurytheme*, Boisd.; *Terias mexicana*, Boisd.; *T. nicippe*, Cram.; and *Heterochroa californica*, Butler.

A CLASSIFICATION OF THE NORTH AMERICAN  
MYRMELEONIDÆ.

BY NATHAN BANKS, WASHINGTON, D. C.

Some time ago in examining our species of ant lions I noticed that our two large genera, Myrmeleon and Brachynemurus, could readily be separated by the position of the origin of the radial sector; in one much nearer to the base of the wing than in the other. The characters previously used for Brachynemurus, as the forked costal veinlets, the length of the tibial spurs, etc., had not been satisfactory; and the discovery of this distinction led me to examine the other forms of the family with a view to their better classification.

It is evident that the double series of costals is not in itself of generic importance, for in Maracanda one species has a double series, and another species, closely allied, but one series; and, more than this, there are numerous gradations. The use of the tibial spurs, or, better, the length of the first tarsal joint, differs so much in species that appear otherwise closely allied that I cannot see how it can be of generic value. Yet definite differences in this matter, taken in conjunction with other important characters, may well serve to distinguish genera.

In applying the characters I have put chief rank on the origin of the radial sector. This point is best brought out by comparing the ending of the anal vein with the origin of the first fork of the radial sector. This divides the family, as represented in our fauna, into two groups, each of four genera. By such a division I was surprised to see that Myrmeleon was more closely allied to Acanthaclisis than to Brachynemurus, yet such a relation is sustained by many other characters.

*Myrmeleon ingeniosus* has long been recognized as differing considerably from the other species of Myrmeleon, and for it I have erected a new genus. Some might think that *Brachynemurus longipalpis* would also form a new genus, but it differs in no important character from other species of Brachynemurus, except the long palpi. There are other important structural variations in this genus; for example, the origin of the radial sector in the hind wings, and the amount of elevation of the vertex. Some specimens of *B. abdominalis* have an elevated vertex, but many Eastern examples have a very low vertex and more prominent eyes. But these variations, though very remarkable, do not appear to indicate specific differences.

## TABLE OF GENERA.

1. Anal vein of fore wings ends much before the origin of the first fork of radial sector, often before the radial sector itself; six or more transversals basad of the radial sector; pronotum broad.....(*Myrmeleoni*) 2.  
 Anal vein of fore wings ends as far out or often farther than the origin of the first fork of radial sector, usually less than six cross veins basad of radial sector; pronotum often more slender.....(*Dendroleoni*) 4.
2. Legs very short and stout, very hairy; tarsus I. much shorter than tibia I., large species.....*Acanthaclisis*.  
 Legs much more slender, not very hairy, tarsus I. scarcely shorter or usually longer than tibia I., usually smaller species.....3.
3. Spurs on leg I. scarcely longer than first tarsal joint; in hind wings usually three or four cross veins basad of radial sector; tarsus I. about as long as tibia I.; hind wings quite narrow, without large spots.....*Myrmeleon*.  
 Spurs on leg I. as long as first three tarsal joints; in hind wings usually but one cross vein basad of radial sector; tarsus I. shorter than tibia I.; hind wings quite narrow, without large spots.....*Psammoleon*.  
 Spurs on leg I. as long as first two tarsal joints; in hind wings about two cross veins basad of radial sector; legs very slender; tarsus I. shorter than tibia I.; antennæ very slender, scarcely clavate; hind wings broad, with large spots.....*Glenurus*.
4. No tibial spurs; first tarsal joint of leg I. as long as next two; in hind wings the cubital fork runs parallel to anal for some distance.....*Maracanda*.  
 Spurs present.....5.
5. In hind wings cubital fork is very short, the anal bending down and not running parallel to the fork; usually but one cell crossed basad of radial sector in fore wings; legs very slender; spurs slender; first tarsal joint nearly as long as next three; pronotum slender; wings with large spots.....*Dendroleon*.  
 In hind wings the cubital fork runs parallel for some distance to the anal vein; spurs stouter; legs stouter; no large spots on wings.....6.

6. The cells basad of radial sector crossed and irregular; a double series of costals almost to the base; radial sector in hind wings arising before the origin of cubital fork. . . . . *Calinemurus*.

Cells basad of radial sector rarely crossed, not irregular; rarely a double series of costals before the middle of wing; radial sector of hind wings often arising beyond origin of radial sector. . . . . *Brachynemurus*.

*Acanthaclisis*, Rambur.

Our four species of this genus differ somewhat in structure, yet I hardly think sufficiently for a new genus. In *A. congener* the fork of the cubital does not run into the anal vein of hind wing as in *A. fallax*. The very stout legs are characteristic of this genus.

*Myrmoleon*, Linné.

In our forms there are two groups of species, those allied to *M. rusticus* and those near *M. immaculatus*. The species are very close to each other and difficult of separation.

*Psammoleon*, new genus.

One series of costals; radial sector arising near the middle of wing, the anal sector ending before its first fork; seven or eight transversals basad of radial sector in fore wing, but one in hind wings; in hind wings the anal vein runs close to the fork of cubitus and then turns away; hind wings narrow, as long as fore wings; palpi short, last joint of labials swollen; antennæ as long as head and thorax; prothorax about as broad as long; legs rather short and hairy; first tarsal joint of leg I. short, the spurs about as long as the first four joints together.

Type *P. ingeniosus*, Walk.

*Glenurus*, Hagen.

Our one species, *G. gratus*, is very easily known by its beautiful markings; the slender legs and antennæ readily separate this genus from the others of this section.

*Dendrooleon*, Brauer.

Wings broad near tip, both pairs maculate; anal vein of fore wings ending slightly beyond origin of first fork of radial sector; about four cross veins basad of radial sector; cubital fork of hind wings short, soon bent down to anal vein; prothorax slender; legs very slender, anterior tarsus much shorter than tibia. But one species, *D. obsoletum*, Say.

*Maracanda*, McLachlan.

No spurs; anterior tarsus about as long as tibia; legs not slender, rather short; anal vein of fore wings ends very much beyond origin of first fork of radial sector; two to four cross veins basad of radial sector; in hind wings the cubital fork runs parallel to the anal vein for some distance; costals single or double. Three species, *M. conspersa*, *signata* and *Henshawi*.

*Brachynemurus*, Hagen.

Anterior tarsus nearly as long or longer than tibia I; legs quite stout; anal vein of fore wings ends beyond the fork of radial sector; only three or four cross veins basad of radial sector; in hind wings the cubital fork runs parallel to anal for some distance; first tarsal joint of varying length; costals with some forked before pterostigma, often very few. A large genus, but it does not appear to be naturally divisible. *B. longicaudus* is the type.

*Calinemurus*, new genus.

Two series of costals nearly to base of fore wings; anal vein of fore wings ends much beyond the first fork of the radial sector; the transversals basad of radial sector being mostly divided; in hind wings the fork of cubitus runs nearly parallel to anal vein for some distance; venation in both wings is rather irregular; palpi short, last joint of labials swollen; antennæ about as long as head and thorax; prothorax longer than broad; legs quite short, anterior tarsus about as long as tibia; spurs as long as first joint. Male appendages long and slender. Type *C. californicus*, Bks. *B. fraternus*, Bks., also goes in this genus, and possibly *B. inscriptus*, Hag. I add the description of an interesting new species of *Brachynemurus* from New Mexico.

*Brachynemurus tuberculatus*, n. sp.

♀. Face yellowish, dark brown between antennæ and above, with a narrow line in middle, and one each side extending down towards the clypeus; above on vertex mostly dark, with a pale spot each side behind; antennæ brown, the second joint paler; palpi pale. Pronotum brown, with an indistinct pale stripe each side; thorax brown, a pale stripe on each side in front of the base of the fore wings; a pale spot on middle of hind border of mesothorax; two pale marks near middle of metathorax; pleura brown. Abdomen brown. Legs pale; apical half of femur brown; a brown ring on middle and near tip of tibia; and a broad



brown mark on middle and a small one at tip of tarsus. Everywhere with sparse short white hairs. Fore wings hyaline; veins mostly dark, sparsely interrupted with white, the costals mostly dark, most other veinlets pale, and with a brown dot near the middle of each; a large mark at end of radial sector; along median vein there is a broad dark, almost black, line, occasionally interrupted; at end of cubital vein is an oblique dark stripe; the veinlets near margin of wings are richly marked with dark brown; pterostigma brown basally, yellowish apically, not touching the costa. Hind wings hyaline; veins dark, not marked, except pterostigma fuscous, and a dot at end of radial sector. Palpi rather short; antennæ of moderate length; on vertex there is a prominent conical tubercle each side; pronotum short, broader than long, narrowed in front; mesonotum with each anterior lobe elevated into a conical tubercle; abdomen ♀ shorter than wings; legs rather short, spurs scarcely as long as first tarsal joint. Wings of moderate length, pointed at tips; hind pair narrow, but little shorter than fore pair; two series of costals in fore wings nearly to origin of radial sector; four cross veins basad of radial sector; anal vein ending near middle of hind margin.

Length, ♀: abdomen, 17 mm.; fore wing, 20 mm.

Mesilla, N. Mexico (coll. Morse).

#### SYNONYMY.

Fam. COCHLIDIONIDÆ, Grote, ex Hübner 1806.

= *Cochlidia*, Hübn., 1806.

= *Cochlidia*, Hübn., 1816.

= *Limacodidæ*, Auct., post 1825.

= *Eucleidæ*, Dyar, 1894.

= *Apodidæ*, Grote, 1895.

= *Heterogeneidæ*, Meyrick, 1895.

Family type: *Cochlidion avellana* (testudo).

Gen. COCHLIDION, Hübner, 1806.

= *Apoda*, Haworth, 1809.

= *Limacodes*, Latreille, 1825.

The above synonymy is proposed as being more correct than the terms employed for the group in current literature. The first plural term is employed by Hübner and should be retained. I cannot find that *Cochlidion* is preoccupied. In any event the correct generic title of the type should be used to form the family name.

A. RADCLIFFE GROTE, Roemer Museum, Hildesheim.

## OBITUARY.

Entomologists will learn with deep regret that Mr. HENRY G. HUBBARD died in January last. His papers, such as "The Life History of *Xenos*," "The Ambrosia Beetles of the United States," etc., will long be remembered, so remarkable are they for their scientific accuracy of observation and their extremely interesting character. The following notice is taken from the *Detroit Journal*:

"Born May 6, 1850, he developed from boyhood a remarkable interest in natural history, and even at an early age showed that fineness and delicacy of observation that distinguished the scientific work of his maturer years.

"After graduating at Harvard, in 1873, he remained in Cambridge as a graduate student in his favourite scientific branches, especially enjoying the friendship and encouragement of Louis Agassiz and Asa Gray. His real life-work began in Florida in 1879, where he soon achieved a wide reputation, both as a practical horticulturist and as a scientific investigator in the economics of orange culture. In fact, his discoveries and inventions can be said to have revolutionized this branch of horticulture. He was in government employ many years of his life as an expert in biology and applied entomology. As a botanist he carried on in his beautiful estate in Crescent City, Fla., an experimental station for the acclimation of West Indian and other tropical plants. Singularly gifted in that indefinable quality which we call magnetism, he could interest the most indifferent by accounts of his work and discoveries, or if the talk was in a lighter vein, his uniform gaiety and originality lent a charm to his most careless utterances.

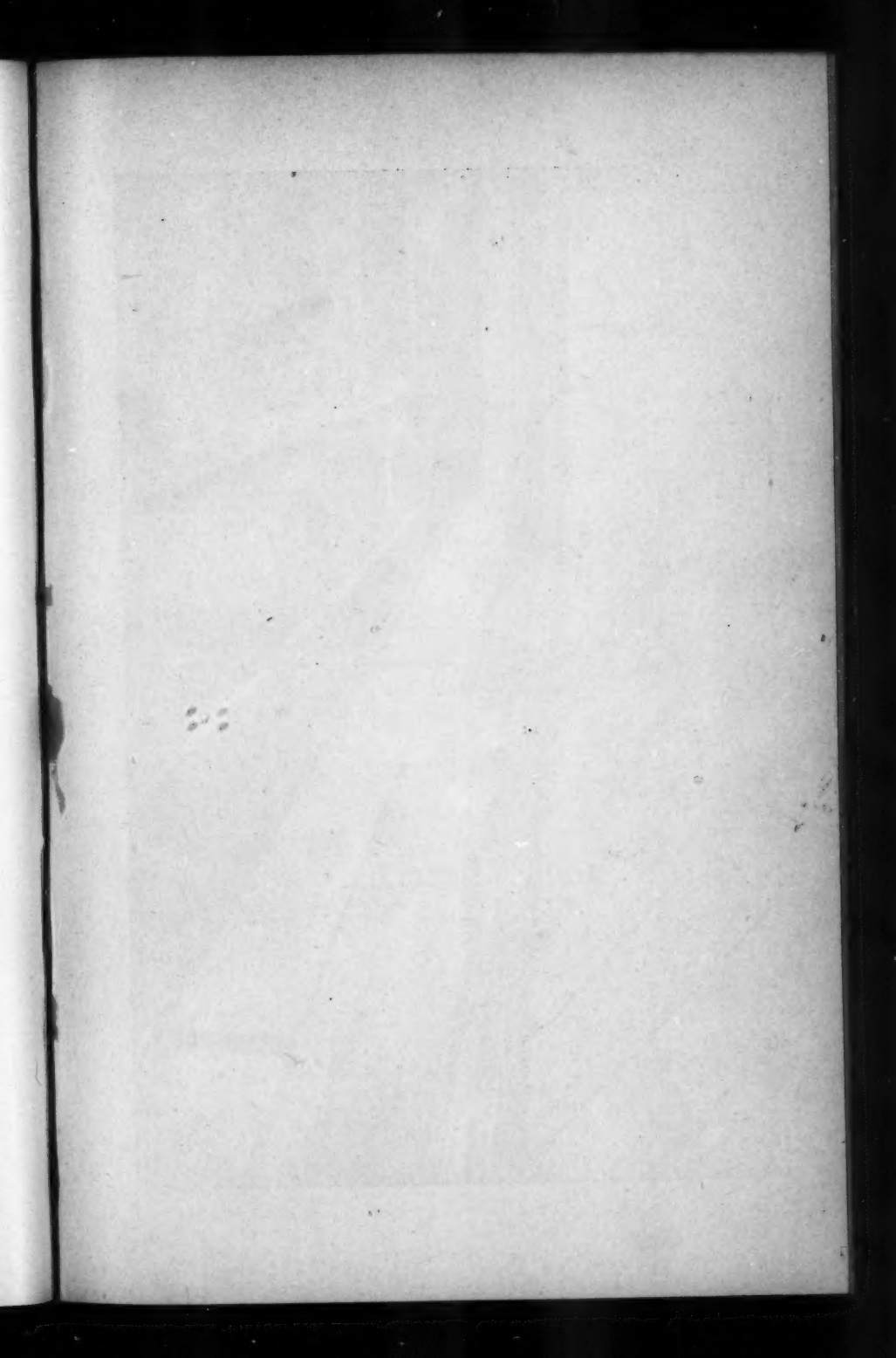
"As a contributor to the advancement of science, his forte lay in a field peculiarly his own—a field where keenness and delicacy of observation were all-important. His papers read before scientific clubs and associations were models of fine scientific treatment and also unusually interesting to the general public.

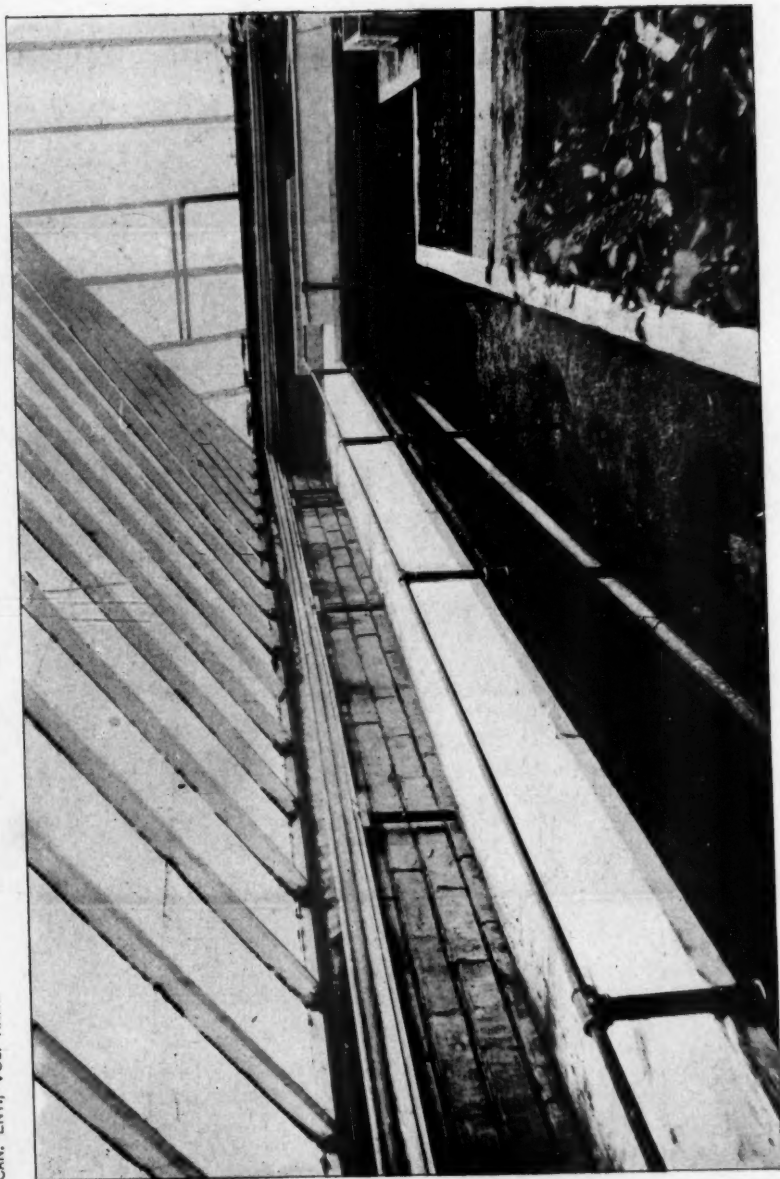
"Lovely in character and a true idealist as man of science or man of affairs, he lived a life equally noble and unselfish.

"'He scarce had need to doff his pride or slough the dross of earth,  
E'en as he trod that day to God, so walked he from his birth,  
In simpleness and gentleness and honour and clean mirth.'

"T. H. P."

Mailed March 6th, 1899.





A SERVICEABLE INSECTARY.





